

WHAT IS CLAIMED IS:

1. A method of diagnosis, comprising:
 - a) identifying a patient at risk of an arthritis, the patient having an interferon gamma gene;
 - b) testing the patient to characterize a polymorphism in the interferon gamma gene.
2. The method of claim 1, wherein the polymorphism occurs within a variable length dinucleotide repeat region within a first intron.
3. The method of claim 2, wherein the variable length dinucleotide repeat region is at least partly located between nucleotides 1349 and 1373 in the interferon gamma gene.
4. The method of claim 1, 2 or 3 wherein the characterization of the polymorphism is carried out so as to be capable of identifying alleles selected from the group consisting of a 126bp allele and a 122bp allele.
5. The method of any one of claims 1 through 4 wherein the characterization of the polymorphism is carried out so as to be capable of resolving alleles having a different number of CA repeats in a portion of the first intron of the interferon gamma gene.
6. The method of any one of claims 1 through 5, wherein the arthritis is rheumatoid arthritis.
7. The method of any one of claims 1 through 6 wherein the patient is caucasian.
8. The method of any one of claims 1 through 7 wherein the step of identifying the patient at risk of the arthritis comprises diagnosing the patient with rheumatoid arthritis.
9. The method of any one of claims 1 through 8, wherein the step of identifying the patient at risk of the arthritis comprises diagnosing the patient with a symptom selected from the group consisting of joint erosions, elevated erythrocyte sedimentation rate, C-reactive protein, polyarticular disease, joint deformities, radiological evidence of subchondral erosions, extra-articular arthritis, and the presence of rheumatoid factor.
10. The method of any one of claims 1 through 9, wherein the characterization of the polymorphism comprises amplification of a variable length dinucleotide repeat region.

11. The use an allele of an interferon gamma gene to diagnose a patient at risk of an arthritis.
12. The use of the allele according to claim 11, wherein the allele is selected from the group consisting of alleles comprising a variable length dinucleotide repeat region within a first intron of the interferon gamma gene.
13. The use of the allele according to claim 12, wherein the variable length dinucleotide repeat region comprises a variable number of CA repeats.
14. The use of the allele according to claim 11, 12 or 13, wherein the allele is selected from the group consisting of a 126bp allele and a 122bp allele.
15. A method of diagnosing the susceptibility of a patient to arthritis, the patient having an interferon gamma gene, comprising testing the patient to characterize a polymorphism in a first intron of the interferon gamma gene.
16. A method of treating a patient having an interferon gamma gene, comprising testing the patient to characterize a polymorphism in the interferon gamma gene; and, treating the patient for arthritis if the polymorphism is indicative that the patient is at risk of an arthritis.
17. The method of claim 16 wherein the polymorphism occurs within a variable length dinucleotide repeat region within a first intron.
18. The method of any one of claims 1 through 17 further comprising testing the patient to characterize a polymorphism in an HLA gene.
19. The method of claim 18 wherein the HLA gene comprises an *HLA-DRB1* locus.
20. The method of claim 18 further comprising testing the patient to characterize a portion of the sequence of an HLA protein.
21. The method of claim 20 wherein the HLA protein is a Class II protein.
22. The method of claim 20 wherein the HLA protein is a HLA-DRB1 protein.
23. The method of claim 22 wherein the portion of the sequence is amino acid 71.